

A Remarkable New Amphipod Genus (Crustacea, Gammaridae) from Eniwetok Atoll Lagoon¹

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DREDGE COLLECTIONS from lagoon sands of Eniwetok Atoll (Crocker, 1971) have yielded a remarkable new genus of gammarid amphipod from hauls made during the summers of 1968–1969. Dredging was accomplished with a biological dredge or a Pierce sand dredge (Pierce, 1965) in lagoon depths of 4.6 to 65.5 meters. I wish to thank William T. Gnewuch, Briarcliff College, Briarcliff Manor, N.Y., for his field and laboratory assistance, and Drs. J. L. Barnard, Division of Crustacea, U.S. National Museum, and E. L. Bousfield, National Museums of Canada, for their advice.

Jerbarnia, new genus

Diagnosis

Accessory flagellum multiarticulate, antenna 2 peduncular article 3 with posterior lobe bearing long setae; mandible palp articles 1–3 of decreasing length, article 3 moderately stout (not falcate), mandible molar triturative; lower lip with inner lobes, mandibular lobes subacute; maxilla 1 inner plate fingerlike, bearing apical setae; maxilla 2 inner plate densely setose apically; maxilliped palp with three articles; gnathopod 2 very elongate in mature males, as long as distance from front of head to posterior margin of pleon segment 2, article 3 elongate, 67 percent length article 6; coxal plate 1 abruptly narrowing and produced anteriorly, coxal plate 2 deepest, up to 2.75 times as deep as coxal plate 3 in mature male, coxal plate 4 with anteriorly- and posteriorly produced rounded lobe; uropod 3 longer than uropod 1, rami subequal, outer ramus biarticulate (uniarticulate in holo-

type); telson half-cleft, trapezoidal, broader than long; pleosome and urosome bearing dorsal teeth and individual spines; lower posterior corners of rear pereon plates and epimeral plates with spine. Generic name masculine, patronym in honor of J. Laurens Barnard whose prestigious work on amphipodous crustaceans has spanned the past two decades.

Type Species

Jerbarnia mecochira, new species.

Relationship

In addition to the original generic descriptions cited below, the following discussion includes generic characters as treated by Stebbing (1906) and Barnard (1969).

This genus is unique in the Gammaridae for its elongate gnathopod 2. Otherwise, the genus has closest affinities to three other genera possessing terminal setae only, on inner plates of maxillae 1 and 2. Closest of the three genera appears to be the monotypic *Maerella* Chevreux, 1910, from the northeast Atlantic and Tunisian coasts. *Maerella* resembles the new genus by shortly cleft telson, pleosome and urosome bearing teeth and spines, maxilliped palp with three articles, mandible palp articles 1–3 of decreasing length, distally narrowing coxal plate 1, and coxal plate 2 deepest. In addition to numerous other characters, the new genus differs from *Maerella* by lack of a falciform article 3 on the mandibular palp; wider, more spinated basal articles on pereopods 3–5; larger, more spinated telson; a biarticulate outer ramus on uropod 3; and three, rather than five articles on the accessory flagellum. *Elasmopus* Costa, 1853, and *Maera* Leach, 1814, both have deeply cleft telsons, a maxilliped palp with four articles, only the urosome toothed occasionally, and uniarticulate outer ramus on uropod 3. The former genus also has a stouter, falcate mandible palp article 3, while the latter genus has a more

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slender mandible palp article 3, and shallower coxal plates.

Parelasomopus, Stebbing, 1888, differs by occasional dense setation on the inner plate of maxilla 2, uropod 3 not exceeding uropod 1, telson deeply cleft, and with dorsally carinate pleosome and urosome segments lacking spines.

Megaluropus Hoek, 1889, and *Metaceradocus* Chevreux, 1925, both have feeble gnathopods, deeply cleft telsons, densely setose inner margins of maxilla 2 inner plates, and uniarticulate outer ramus of uropod 3. The latter genus also has long, subequal antennae 1 and 2, and a falciform article 3 on the mandible palp.

Paraceradocus Stebbing, 1899, differs from the new genus by foliaceous uropod 3 with uniarticulate outer ramus, deeply cleft telson, shallow coxal plate 2, accessory flagellum with four or more articles, and lack of dorsal teeth on the pleosome.

Jerbarnia mecochira, new species

(Figs. 1, 2)

Diagnosis

With the characters of the genus.

Description

Antenna 1 twice length antenna 2, antenna 1 peduncle segment 1 75 percent length segment 2, combined length peduncle segments 1–3 longer than flagellum, accessory flagellum with 3 articles; mandible palp articles 1 and 2 with a few scattered setae, article 3 about 80 percent length article 2 (latter article obliquely shown in figure), article 3 bearing comb setae and serrated setae apically; maxilla 1 inner plate extending to distal end of palp article 1; maxilliped palp article 2 twice length article 3, inner plate reaching about halfway along length of outer plate, gnathopod 1 slender in both sexes, angle of palm bearing heavy spine against which dactyl closes, anterior medial side of palm bearing two heavy spines; gnathopod 2 article 5 82 percent length article 6 in smaller males, decreasing to 38 percent article 6 in larger males, male dactyl closing on excavated palmar surface, palmar angle bearing two blunt, slightly curved spines, medial anterior margin of palm with two heavy spines on truncate pro-

jection, female gnathopod 2 slender, article 5 longer than article 6; pereopod 1 longer than pereopod 2 in both sexes; coxal plate 1 bearing 1–6 spines distally (juveniles and adults), coxal plate 2 bearing total of 2–14 spines on distal anterior and posterior margins (juveniles and adults); uropod 1 outer edge of outer ramus with 0–5 spines, uropod 2 not reaching distal end of uropod 3 peduncle; telson bearing four large spines and six plumose spines apically; for both sexes, pleon segments 1–3 with five teeth and four spines dorsally, pleon segments 4 and 5 with two teeth and two spines dorsally, pleon segment 6 with two spines dorsally; eye red in alcohol; other characters as in figures.

Holotype

Holotype is USNM no. 135732, male, 4.7 mm (figured).

Type Locality

Type locality is Eniwetok Atoll lagoon, 9.3 km northwest of Eniwetok Islet, 30.5 m, August 22, 1968.

Additional Material Examined

Examined were a total of 11 individuals: Eniwetok lagoon, 9.3 km northwest of Eniwetok Islet, 30.5 m, August 22, 1968: one juvenile paratype (USNM 135733). Eniwetok lagoon, 13.3 km northwest of Eniwetok Islet, 55.2 m, August 14, 1969: three females (two ovigerous), 2 males, five juveniles, paratypes (USNM no. 135734).

Remarks

Lengths of ovigerous females and numbers of eggs were: 4.0 mm, four eggs; 3.75 mm, three eggs. The sample of seven eggs averaged 0.48 mm, and 0.37 mm for length and width, respectively.

The holotype and one juvenile paratype (1.4 mm) were associated with the following in the dredge sample: *Halimeda* debris, fine sand, shell, polychaetes, and copepods. The remaining paratypes were associated with: *Halimeda* debris, fine sand, abundant algae, foraminifera, polychaetes, ostracods, copepods, tanaids, shrimp, ophiuroids, urchins, and *Amphioxus*.

The specific name reflects the large, elongate gnathopod 2 of the male holotype.

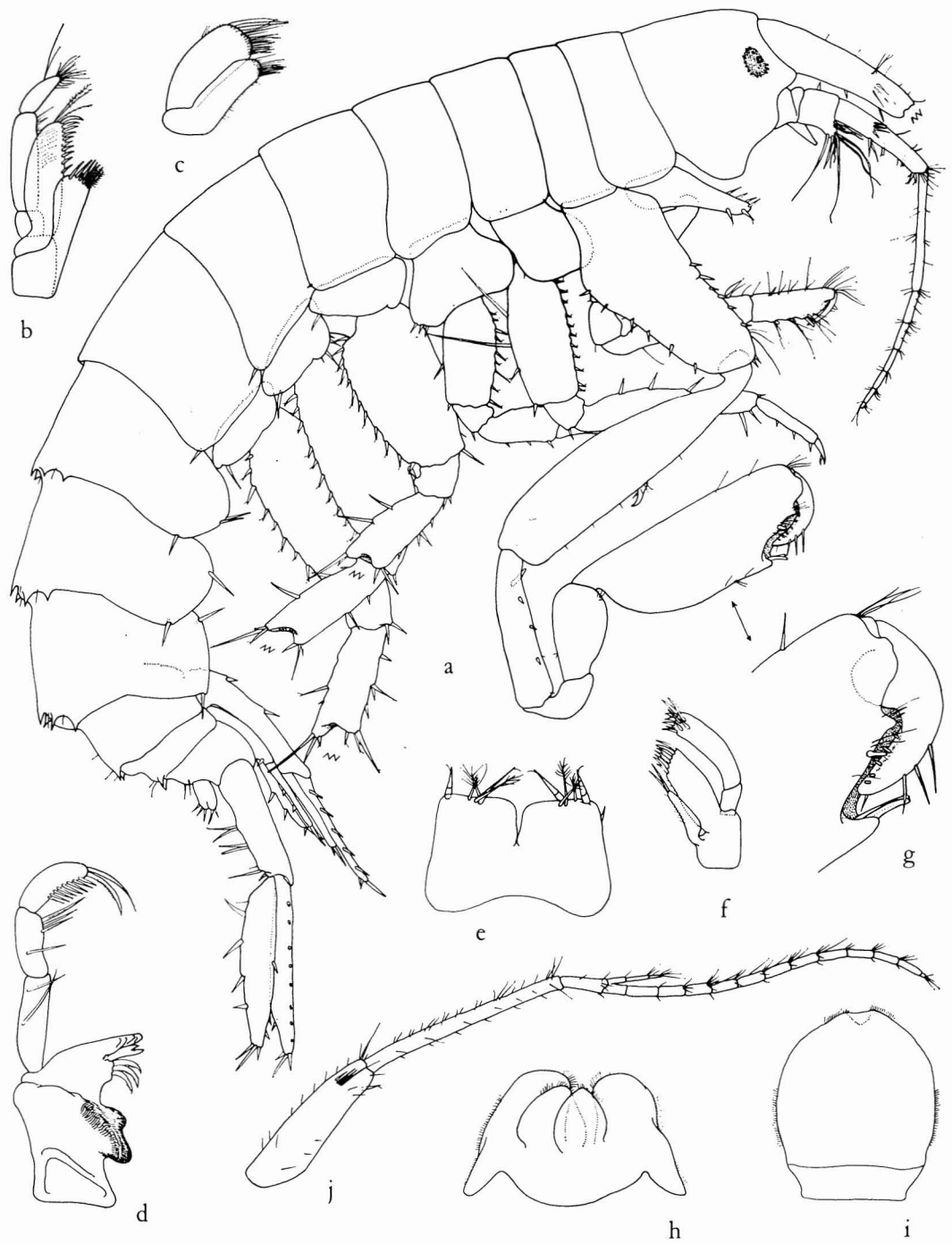


FIG. 1. *Jerbarnia mecochira*, new genus, new species, holotype, male, 4.7 mm. *a*, Lateral view; *b*, maxilliped; *c*, maxilla 2; *d*, mandible; *e*, telson; *f*, maxilla 1; *g*, gnathopod 2 detail; *h*, lower lip (inner lobes pressed left); *i*, upper lip. Male, 4.0 mm. *j*, Antenna 1.

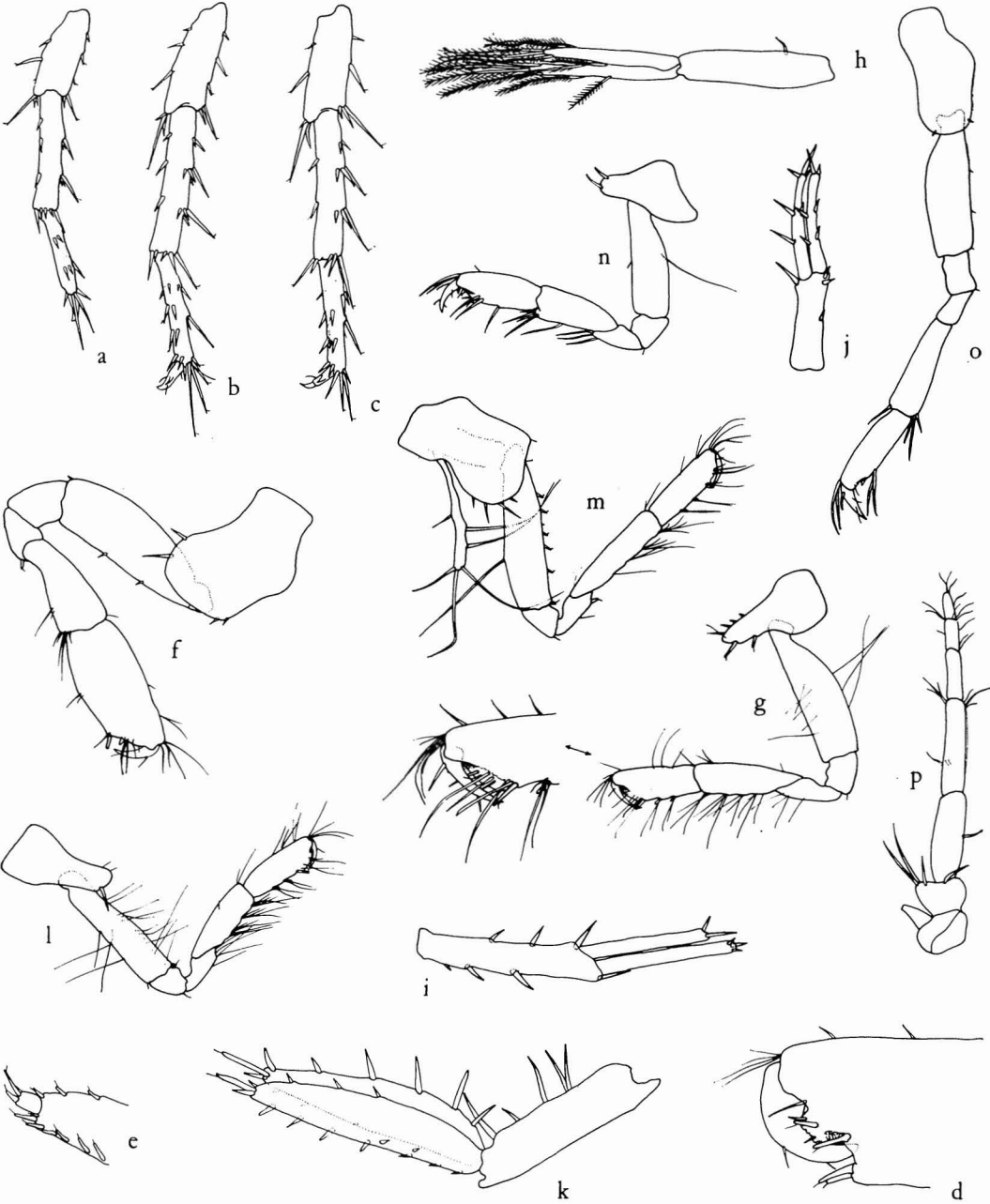


FIG. 2. *Jerbarnia mecochira*, new genus, new species, male, 4.0 mm. *a*, *b*, *c*, Pereopods 3, 4, 5 (articles 4-7); *d*, gnathopod 2 palm detail (medial); *e*, uropod 3 (distal) showing biarticulate outer ramus. Male, 3.5 mm. *f*, Gnathopod 2. Male, holotype, 4.7 mm. *g*, Gnathopod 1; *h*, pleopod 1 (posterior surface); *i*, *j*, *k*, uropods 1, 2, 3 (ventral surface of 3). Female, 4.0 mm. *l*, Gnathopod 1; *m*, gnathopod 2. Juvenile, 1.4 mm. *n*, Gnathopod 1; *o*, gnathopod 2; *p*, antenna 2.

Distribution

Eniwetok lagoon, 30.5 to 55.2 m.

LITERATURE CITED

- BARNARD, J. L. 1969. The families and genera of marine gammaridean Amphipoda. United States National Museum, bulletin no. 271, pp. 1-535, figs. 1-173.
- CHEVREUX, E. 1910. Campagnes de la *Melita*: Les amphipodes d'Algérie et de Tunisie. Mémoires Société zoologique de France, vol. 23, pp. 145-285, pls. 6-20.
- . 1925. Amphipodes I: Gammariens. Voyage de la Goélette *Melita* aux Canaries et au Sénégal (1889-1890). Bulletin de la Société zoologique de France, vol. 50, pp. 278-311, figs. 1-12.
- COSTA, A. 1853. Relazione sulla memoria del Dottor Achille Costa, di ricerche su' crostacei anfipodi del regno di Napoli. Rend. Soc. Reale Borbonica, Accad. Sci., Anno 1853, pp. 166-178.
- CROKER, R. A. 1971. A new species of *Melita* (Amphipoda: Gammaridae) from the Marshall Islands, Micronesia. Pacific Science, vol. 25, no. 1, pp. 100-108. 2 figs.
- HOEK, P. P. C. 1889. Crustacea Neerlandica II. Nieuwe lijst van tot de fauna van Nederland behoorende Schaaldieren, met bijvoeging van enkele in de Noordzee verder van de Kust waargenomen Soorten. Tijdschrift der Nederlandsche dierkundige vereeniging, ser. 2, vol. 2, pp. 170-234, pls. 7-10.
- LEACH, W. E. 1814. Crustaceology. Edinburgh Encycl., (Amphipoda), vol. 7, pp. 402-403.
- PFEFFER, G. 1888. Die Krebse von Süd-Georgien nach der Ausbeute der deutschen Station 1882-83. 2: Tiel: Die Amphipoden. Jahrbuch der Hamburgischen Wissenschaftlichen Anstalten, vol. 5, pp. 76-142, pls. 1-3.
- PIERCE, E. L. 1965. The distribution of lancets (Amphioxii) along the coasts of Florida. Bulletin of Marine Science, Gulf and Caribbean, vol. 15, pp. 480-494.
- STEBBING, T. R. R. 1888. Report on the Amphipoda collected by H.M.S. *Challenger* during the years 1873-76. In: Great Britain, Report on the scientific results of the voyage of H.M.S. *Challenger* during the years 1873-76, Zoology, vol. 29, pp. i-xxiv + 1-1737, pls. 1-210 (in 3 vols.). Edinburgh.
- . 1899. Amphipoda from the Copenhagen Museum and other sources, Part II. Transactions of the Linnaean Society of London (Zoology), ser. 2, vol. 7, pp. 395-432, pls. 30-35.
- . 1906. Amphipoda I: Gammaridea. Das Tierreich, vol. 21, pp. 1-806, figs. 1-127.